Nancy Ouyang

nouyang@alum.mit.edu • (678) 379-8088 • nancyouyang.com

EDUCATION

Massachusetts Institute of Technology
Bachelor of Science degree in Mechanical Engineering **June 2013**

INDUSTRY EXPERIENCE

Harvard Personal Genome Project – *Staff* **Jul** – **Dec 2015**
Created new phenotype survey, provided technical support to researchers from other institutions.

Curoverse – *Researcher (under Alexander Wait Zaranek)* **Sep 2014 – Dec 2015**
Created open source genomics web applications in Python, initiated customer research interviews, presented to Global Alliance for Genomics and Health, ran non-credit month-long genomics class.

Essess, Inc. – *Contractor* **Oct – Dec 2014**
Wrote several Robot Operating System (ROS) to Arduino serial drivers for lux and other sensors.

MIT Office of Digital Learning – *Contractor (under Isaac Chuang)* **Jan – May 2014**
With NarwhalEdu cofounder, took on contract work to investigate replacing the $5k robots in MIT's introductory EECS class with $200 robots that we prototyped.

NarwhalEdu – *Founder* **Jun 2013 – Sep 2014**
Accepted to Global Founder's Skills Accelerator 2013. Designed drawing robot arm kit and complementary online curriculum as an introduction to engineering EdX class. Reached close to 100 students with over $20k of sales (via Kickstarter) in our first year. See: Kickstarter & Edx Class.

Fitbit – *Research and Development Intern* **Jun – Aug 2012**
Evaluated prototypes of future product by writing MSP430 evaluation firmware, designing mechanical prototypes sent out for CNC machining, and analyzing experimental data in Pylab and MATLAB.

Code for America – *Google Summer of Code Intern* **Jun – Aug 2011**
Developed open-source python wrappers for government-related APIs.

RESEARCH EXPERIENCE

MIT Media Lab, Opera of the Future Group **Jun – Jul 2011**
Undergraduate Researcher (under Tod Machover)
Designed mechanical molds project turning everyday objects into percussive instruments.

PUBLICATIONS

Guthrie, S., *et al.* Tiling the genome into consistently named subsequences enables precision medicine and machine learning with millions of complex individual data-sets. (2015). *PeerJ PrePrints* 3:e1426v1; doi.org/10.7287/peerj.preprints.1426v1

Novak, B., *et al.* Genome Graphs. (2017). *bioRxiv* 101378; doi.org/10.1101/101378

TEACHING EXPERIENCE

MIT International Design Center – *Recitation Instructor (under Charles Guan)* **Jun – Jul 2013**
Assisted teaching a class where students from the Singapore University of Technology and Design spent six weeks designing and building their own electric go-kart to race at the end of the summer.

MIT Office of Minority Education – *Momentum Teaching Assistant* **Jan 2013**
Assisted a team of four freshmen and sophomores in designing and fabricating a prototype electrical vehicle charger that would improve handling of the thick gauge wire involved.

MIT Department of Mechanical Engineering – *Undergraduate Assistant* **Feb – May 2012**
Assisted with office hours, prototyping skills, for sophomore-level mechanical engineering class "Design and Manufacturing I".

LEADERSHIP & SERVICE

Open Source Hardware Association – *Treasurer* **Apr 2013 – Apr 2014**
Prepared quarterly budget reports for 30k+ of assets.

MIT Electronics Research Society – *President* **Feb 2012 – Feb 2013**
A member-run creative haven and machine shop at MIT. Started and led student project grants and peer-to-peer workshop and seminar series.

Metrify – *Startlabs Concept to Company Team Lead* **Jan 2012**
Led team of four people in prototyping a low-power wireless water bottle sensor and data analysis platform for the Internet of Things.

EECS Undergraduate Reading Group Experience – *Group Leader* **Spring 2012**
Led discussion of papers on hexapods over five meetings with group of six fellow undergraduates.

INDEPENDENT PROJECTS

CAD Reading Group **Oct 2015 – now**
Started and led reading group with over twenty people to discuss and read papers on engineering software that aids in design, simulation, and analysis.

Hackathon for Feminism **Aug – Nov 2015**
Organized hackathon to engage engineers in a creative problem-solving outlook on feminist activism. Our speakers came from MIT Medical and the Boston Doula Project and we had over forty attendees.

Sailboat Rudder **Jun 2015**
Taught myself how to work with composites and built replacement rudder for 26 foot sailboat by creating a two-part CNC foam mold and using fiberglass, epoxy, and two-part expanding foam.

Six-Legged Rideable Robot **Jun – Aug 2011**
Built a six-legged rideable robot, derived from designs by Rick Pantaleo, and gave rides to kids at New York Maker Faire 2011 and 2012.

18 Servo Hexapod **Feb – May 2011**
Inspired by dancing hexapod Youtube videos, I independently designed, built, and programmed an 18

servo six-legged robot to walk in lieu of the normal class competition with the professor's permission.

CONFERENCES

“The Rise and Fall of an Open Source Hardware Startup”, Talk **19 Sep 2015**
Open Hardware Summit

“The Story of a Startup”, Talk **28 Apr 2015**
Nanyang Technological University, Boston Technopreneurship Forum

Introduction to Making: Rapid 3D Fabrication at MIT and Beyond, Panel **03 Feb 2015**
MIT Office of Digital Learning, xTalks

“CopyCat Drawing Robot Arm”, Demo **04 Oct 2013**
Northeast Robotics Colloquium

Curriculum and Program Innovation, Panel **20 Sep 2013**
Production in the Innovation Economy Conference

GRANTS

Boston Awesome Foundation, Colorful Swarm of Robots **Nov 2014**
Designing twenty robots and associated dance choreography.

de Florez Fund for Humor, Hexapod Conference 2013 **04 Apr 2013**
Organized conference about legged robots with Prof. Sangbae Kim and Prof. Aaron Hoover as speakers and with over thirty attendees. Led team of six volunteer staff.

MIT Department of Mechanical Engineering, MITERS Seminar Series **16 Sep 2012**
Organized and co-taught workshops to introduce people to prototyping skills such as Solidworks, breadboarding, EAGLE, ordering boards, and more, reaching over fifty students.

PRESS

“All in a Day's Play”, **MIT Technology Review** 21 April 2015
"When inspiring future roboticists, think small, think cute", **BetaBoston** 13 Aug 2014
"Gatttool, ubuntu, and Adafruit’s Bluefruit LE – NRF8001 Bluetooth low energy breakout in 20 minutes", **Adafruit** 28 Jul 2014
"Spotlight: Robots in STEM Education", **ASEE Accelerator** 22 Jan 2014
"Wicked Cool Education from NarwhalEdu", **Makezine** 04 Dec 2013
"Learn Engineering and Draw Narwhals", **Hackaday** 22 Nov 2013

AWARDS

MAKE Pitch Your Prototype Finalist 21 Sep 2013
NYC Hackathon “Most APIs” Award 25 Mar 2012

SKILLS

Languages: Chinese (intermediate), Spanish (beginner)
Software: Python, Java, C, MATLAB, Bash, Javascript, SQL. Vim. Wordpress, Inkscape, GIMP. Git.
Hardware: Solidworks, Eagle, machining (mill, lathe), lasercutter/waterjet, Atmel C.